

# Mineral Industry Surveys

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## MANUFACTURED ABRASIVES IN THE THIRD QUARTER 2004

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

### Fused Aluminum Oxide

The total production during the third quarter of 2004 was estimated to be 5,000 metric tons of regular-grade crude fused aluminum oxide. Only one company, which operates one plant in Canada, produced fused aluminum oxide. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide through August 2004 were 108,000 tons valued at \$28.6 million, or an average of \$261 per ton. About 79% of the imports came from China, 12% from Canada, 7% from Venezuela, and about 2% from other countries. Imports of crude fused aluminum oxide from China may not all be abrasive-quality material.

U.S. imports of refined and ground fused aluminum oxide through the month of August 2004 reached 32,200 tons valued at \$29.1 million, or an average of \$902 per ton. The top five sources of the refined and ground imports were Germany (19%), Brazil (15%), Austria (13%), Venezuela (12%), and Canada (9%).

U.S. exports of fused aluminum oxide through August 2004 were 9,450 tons. The exports were valued at \$27.5 million, or \$2,910 per ton. Germany received 30% of the exports that were shipped; Canada 23%, Mexico 18%, Japan 9%, the Republic of Korea 8%, and others 12%.

The Department of Defense stores fused aluminum oxide in the National Defense Stockpile (NDS). All of the NDS aluminum oxide, however, has been authorized by law for disposal. During the first quarter of 2004, the Department of Defense reported sales of 1,810 tons of fused aluminum oxide

abrasive grain valued at \$606,000. At the end of the first quarter, NDS reported that 8,290 tons of fused aluminum oxide abrasive grain with an estimated value of \$3 million remained in the stockpile. The first quarter sales met the authorized FY2004 Annual Materials Plan for sales of fused aluminum oxide abrasive grain, so there will not be any further sales during FY2004. The NDS has sold all of the crude fused aluminum oxide in the stockpile (Janet Rollins, Defense National Stockpile Center, oral commun., 2004). No further stockpiling of crude fused aluminum oxide by the Department of Defense is anticipated. If the current authorized disposal rate and NDS sales schedules are continued, all of the stockpiled fused aluminum oxide abrasive grain could be sold by the end of 2006.

### Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production during the third quarter of 2004 was estimated to be 10,000 tons of abrasive-grade silicon carbide with an estimated value of \$5 million. This total production figure has been rounded to the nearest 5,000 tons to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide for the year through August 2004 were 105,000 tons valued at \$42.2 million; imports from China alone were 57,900 tons valued at \$24.4 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$375 per ton; the average price of Chinese crude was \$421 per ton. U.S. imports of refined and ground silicon carbide for the same period were 26,200 tons valued at \$30.4 million, or an average of \$1,160 per ton. During the period, China accounted for 55% of the crude material and 31% of the refined and ground material.

U.S. exports of crude silicon carbide through August 2004 were reported to be 2,510 tons with a value of \$3.31 million. Exports of refined and ground silicon carbide were 7,710 tons valued at \$6.48 million. About 97% of the crude material was shipped to, in decreasing order, Norway, Japan, and Mexico. Most of the refined material went to, in decreasing order, China, Brazil, and Venezuela.

The NDS has sold all of the silicon carbide in the stockpile. No further stockpiling is anticipated.

#### **Metallic Abrasives**

Metallic abrasives information was collected from 12 companies operating 14 U.S. plants. During the third quarter of 2004, four companies produced 50,900 tons of steel shot and grit, an increase of 3%, compared with the same period in 2003. At least one of the companies produced shot and grit from reclaimed material. Total third quarter production was valued at \$23.2 million, or an average of \$456 per ton. Total annual production in 2003 was 192,000 tons valued at \$86.2 million; 2002 production was 201,000 tons valued at \$91 million.

Shipments of steel shot and grit in the third quarter of 2004 were 48,900 tons valued at \$22.3 million, or an average of \$457

per ton, compared with shipments during the third quarter of 2003, which were 57,400 tons valued at \$27 million for an average of \$470 per ton.

Third quarter production of other types of metallic shot and grit (primarily cut wire shot) was 406 tons valued at \$1.36 million. Six companies produced shot.

Imports of all types of metallic shot and grit through August 2004 were 10,700 tons valued at \$6.28 million for an average of \$587 per ton. Canada was the largest supplier, accounting for 69% of the tonnage imported.

Exports of all types of metallic abrasives through August 2004 were 18,300 tons valued at \$13.2 million, or an average of \$721 per ton. Shipments to Mexico accounted for 49% of the exports; an additional 45% was shipped to Canada.

TABLE 1  
MANUFACTURED ABRASIVES<sup>1</sup>

(Metric tons, unless otherwise specified)

Source and product	2003				2004					
	Third quarter		Fourth quarter		First quarter		Second quarter		Third quarter	
	Value		Value		Value		Value		Value	
	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)	Quantity	(thousands)
United States and Canada, production: <sup>2</sup>										
Silicon carbide <sup>3</sup>	10,000	\$5,100	10,000	\$4,900	10,000	\$5,300	10,000	\$5,300	10,000	\$4,900
Crude aluminum oxide, regular-grade	(4)	(5)	(4)	(5)	(4)	(5)	(4)	(5)	5,000	1,500
United States, production:										
Steel shot and grit	49,200	21,900	42,100	18,800	46,400	21,000	49,100	22,300	50,900	23,200
Other shot and grit <sup>4, 6</sup>	334	1,190	345	1,250	242	783	318	1,040	406	1,360
Total	49,500	23,000	42,400	20,000	46,700	21,700	49,400	23,300	51,300	24,600
United States, shipments:										
Steel shot and grit	57,400	27,000	46,600	21,400	51,600	24,400	53,300	24,900	48,900	22,300
Other shot and grit <sup>4, 6</sup>	310	1,280	323	1,320	341	1,260	340	1,250	357	1,290
Total	57,800	28,300	46,900	22,700	52,000	25,700	53,600	26,100	49,300	23,600

<sup>e</sup>Estimated. <sup>f</sup>Revised.

<sup>1</sup>Data are rounded to no more than three significant digits; may not add to totals shown.

<sup>2</sup>Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

<sup>3</sup>Includes materials for metallurgical uses and other applications.

<sup>4</sup>Less than 2,500 tons.

<sup>5</sup>Less than \$500,000.

<sup>6</sup>Includes cut wire shot and reclaimed shot and grit from primary producers.